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ABSTRACT

The Computers in Bilingual Education (CIBE) program offers instruction in computer literacy and in academic subjects for limited English proficient (LEP) students at the South Bronx High School in New York City. A variety of public funding sources were used to provide materials, personnel and staff development for the program. During the first two years of CIBE, 302 low income Spanish-speaking students in grades 9 through 11 were served. The staff participated in activities to encourage parental involvement. Staff members plan to translate mainstream curriculum materials into Spanish if reallocation of monies is approved. The program successfully encouraged student attendance and promoted teamwork among school, project, and bilingual staff. Statistical data are presented to show the full and partial achievement of the academic objectives. Recommendations for improvement of CIBE are: (1) weekend events and a bilingual newsletter for parents; (2) reorganization of staff to prevent burnout; (3) purchase of new office equipment; and (4) compilation of a list of program developed materials. (VM)

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ED282944

OEA Evaluation Report

SOUTH BRONX HIGH SCHOOL

COMPUTERS IN BILINGUAL EDUCATION

1985-1986

U.S. DEPARTMENT OF EDUCATION
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O.E.A. Evaluation Section Report

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Grant Number: G00-824-5060

SOUTH BRONX HIGH SCHOOL

COMPUTERS IN BILINGUAL EDUCATION

1985-1986

Principal:
Joseph De Jesus

A.P. Supervision:
Euclid Mejia

Project Director:
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A SUMMARY OF THE REPORT

The Computers in Bilingual Education (CIBE) program completed its second year of funding in June 1986 at South Bronx High School. Its two chief goals were to offer limited English proficient (LEP) students computer-assisted instruction in English as a second language (E.S.L.), native language arts, social studies, mathematics, and science, and to provide instruction in computer literacy. The program served 302 low-income ninth-, tenth-, and eleventh-grade Spanish-speaking students. The majority were recent immigrants from Puerto Rico and several Latin American countries. They varied in English- and Spanish-language proficiency, and in overall academic preparedness.

The program's direct-instruction component was funded from a variety of sources, including tax levy, Chapter I, Pupils with Special Educational Needs (P.S.E.N.), and Module 5B funds. This year, to meet a significantly increased enrollment, five new teachers (two with E.S.L. and three with Spanish licenses) were hired to teach E.S.L.

A new bilingual guidance counselor was also hired, using Chapter I funding. The counselor was available to all bilingual students on an individual basis and frequently held group sessions with them.

Using Title VII funds, a new full-time resource teacher was hired to develop curricula for the program. She was primarily involved in translating instructions to computer software for bilingual use. She also translated the Citywide Social Studies Examination into Spanish.

Title VII funds also supported computer-assisted instruction in the content areas, E.S.L., and native language arts, as well as computer-literacy and keyboarding/word processing instruction. Computers were used largely for review/drill purposes in the former three areas. In the computer-literacy course, students were taught BASIC and developed elementary programming skills. In the keyboarding/word-processing class, they learned keyboarding and word-processing skills terminology needed to work effectively in an office setting.

The four computer labs were in operation in the fall of 1985. Three had 17 IBM personal computers each and one had 26 Tandy computers. Each computer lab had four printers. Two labs were equipped with television monitors to permit classroom-wide instruction. All four labs were in use approximately 85 percent of the time, with scheduling coordinated by the office of the A.P. for supervision. A computer paraprofessional was assigned to each lab to "boot-up" the machines with the appropriate software for each class and support teachers when necessary. The bilingual program had five IBM PC terminals and printers of its own. Mounted on carts, this equipment circulated between classes as needed. Scheduling was coordinated by the bilingual program office. Students and teachers were enthusiastic about incorporating the computer into the curriculum. Teachers were provided with in-service training in computer use; students were given appropriate introductory lessons on correct computer operating and safety procedures.

In the summer of 1985, program staff reviewed and evaluated software packages, which were then introduced to teachers in the fall during a staff development day. A list of the software packages that had been evaluated was circulated to the faculty. The software itself and a set of written evaluations were kept in the office of the A.P. for supervision and teachers were encouraged to make their own review of these materials.

Members of the program's staff also revised and translated the mainstream curricula for American history I and II, computer literacy I and II, sequential math I and II, and consumer economics. Spanish texts and classroom materials were therefore available in the fall for each of these content areas. The A.P. for supervision was awaiting approval from the Bilingual/E.S.L. Office of the Board of Education for the printing of the math and American history texts. It was hoped that, once printed, these texts will be disseminated to other schools.

If Washington approves the necessary reallocation of monies, program staff members will also review and evaluate software and translate materials for classroom use during the summer of 1986. Staff members would finish translating social studies software, evaluate additional E.S.L. units, and adapt materials from the English department for E.S.L. use. In addition, the mainstream curricula for chemistry and American history II would be revised and translated into Spanish.

Program staff, the A.P. for supervision, and the principal initiated outreach efforts to raise the level of parental involvement in the program. Approximately 12 parents participated in an E.S.L. class that was offered during the spring. The Parent Advisory Board met twice during the year and made several classroom visits as well. Parents also attended Awards Night and the luncheon and shows organized for Puerto Rican Day and Pan American Day. Parents, bilingual students, and teachers worked together on a production of Southside Story which was performed by program students in the spring. The bilingual guidance counselor and bilingual assistant continued making phone calls to individual parents to invite them to attend school functions.

The bilingual program was effective in meeting the needs of its target population. This year's valedictorian was a member of the bilingual program. According to the project director, program students tended to drop out of school less than mainstream students. Those who did drop out either returned to their native country or had to get jobs to help support their families. Young women who left school to have children tended to return to the program to finish their schooling as soon as possible.

Because the bilingual program was strongly supported by the principal and centralized under the A.P. for supervision, its curriculum closely paralleled that of the mainstream. School, project, and bilingual staff communicated with each other frequently, working together as a team to meet program objectives.

Program objectives were assessed in English language development (Criterion Referenced English Syntax Test [CREST] and teacher-made tests); computer literacy (teacher-made test); and content-area subjects (teacher-made tests). Quantitative analysis of student achievement data indicates:

--At CREST Levels 1 and 2, students surpassed the proposed criterion with an average mastery of 1.6 and 1.8 objectives per month in the fall and spring, respectively. At Level 3, students mastered 0.6 CREST objectives per month of instruction both semesters, which was not significantly lower than the criterion (0.8). Thus the objective was achieved.

--Students achieved overall passing rates of 72 percent in E.S.L. reading and 73 percent in native language arts, thus meeting the program objective in those areas. However, achievement in E.S.L. courses was lower than the 70 percent criterion set by the objective. Thus the objective was partially achieved.

--Passing rates of program students in mathematics and science were equal to or significantly greater ($p.>.05$) than passing rates of mainstream students in those areas. In social studies, however, program students' passing rates were lower than mainstream students' rates. Thus the objective was partially achieved.

--Students made statistically significant gains on a program-developed test of computer literacy.

The following recommendations are aimed at improving the program's overall effectiveness:

--To increase parent participation, the school might schedule some cultural events and/or parent meetings on weekends. E.S.L. instruction and/or training in word processing might also be provided on weekends. The bilingual program might also consider inaugurating a parents' column in the bilingual newsletter. Students might also be encouraged to do oral history interviews with their parents and publish them in the newsletter.

--To prevent teacher burn-out, highly qualified and experienced teachers should be encouraged to work with less experienced paraprofessionals in the classroom and to give demonstration workshops for new teachers. In this way, others could learn effective teaching techniques, enabling them to better share the teaching load. Paraprofessionals should be integrated as much as possible with classroom work. To enhance their skills, they should be encouraged to attend teacher-training workshops, pro-

fessional meetings, and conferences. The three paraprofessionals who are working on their education degrees should be encouraged to finish and to get appropriate teaching licenses.

--The school might want to consider purchasing an additional air-conditioner for the Tandy lab (the larger of the computer labs) to control the heat that emanates from its 26 computers. This may do away with the need to turn the lights off during class to keep the room cool.

--The school might also investigate ways to acquire typing stands for the bilingual typing and word-processing classes. It might consider seeking donations from a local office supplier or business.

--A list of program-developed curricular materials and software in E.S.L., social studies, Spanish, math, computer literacy, and science prepared under Title VII should be compiled and made available to other programs that serve similar student populations.

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COMPUTERS IN BILINGUAL EDUCATION
SOUTH BRONX HIGH SCHOOL

Location:	701 St. Ann's Avenue Bronx, New York 10455
Year of Operation:	1985-86, Second year of Title VII Funding
Target Languages:	English and Spanish
Number of Participants:	302 students of limited English proficiency
Principal:	Joseph De Jesus
Assistant Principal for Supervision:	Euclid Mejia
Project Director:	Sheila Fallick

I. INTRODUCTION

South Bronx High School is an academic-comprehensive high school located in one of the most economically depressed areas of New York City. With a total enrollment of 914 students drawn mainly from the surrounding community, it is a small school. Seventy-eight percent of the student population is of Hispanic origin.

Ever since its inception in 1977, South Bronx High School has had a bilingual program in place. It also has had two Title VII-funded projects: the Basic Skills Bilingual Program, between September 1978 and August 1982, and the Career Awareness/Survival Skills Project, from 1982 to 1984. In its second year of funding, the CIBE (Computers in Bilingual Education) Project builds on the basic-skills and life-skills curricula that were developed in these two previous programs.

This year Project CIBE served 302 students of limited English proficiency (LEP), making maximum use of several funding sources: local tax levy, Chapter I, state funds for Pupils with Special Educational Needs (P.S.E.N.), and Title VII. Instruction in English as a second language (E.S.L.), native language arts (Spanish), social studies, mathematics, and science was paid for by non-Title VII funds. Title VII funds were used to pay for computer-assisted instruction in these areas and for instruction in computer literacy.

Throughout 1985-86, the program, coordinated by a project director working under the assistant principal (A.P.) for supervision (of mathematics, science, foreign languages, E.S.L., and bilingual education), experienced several staffing changes. An increase in student enrollment necessitated hiring additional staff. Five new teachers (two with E.S.L. and three with Spanish licenses) were hired to teach E.S.L. One of the three out-of-license teachers will take the E.S.L. licensing examination this year. The other two out-of-license teachers are taking preparation courses for the exam. According to the project director, because all three of the teachers who are out-of-license to teach E.S.L. are licensed language (Spanish) teachers, they are familiar with methods of language instruction that can be applied to the teaching of English. This year they worked closely with the project director, an experienced E.S.L. curriculum specialist. The bilingual program is waiting for one of the paraprofessionals, who recently graduated from college, to take her licensing exam in bilingual math. (This year she worked full-time with

a bilingual math teacher who had been hired out of license. Title VII funds were used to hire a full-time resource teacher to do curriculum development for the program. The school also hired a new bilingual guidance counselor, using Chapter I funds. (Detailed information on the program's staff is given in Appendix A.)

Title VII-supported program staff consists of the project director, one resource teacher (rather than the two originally proposed) one office aide, and two paraprofessionals. Tax levy-supported program staff consists of an A.P. for supervision, a bilingual dean, and a bilingual grade advisor. The bilingual guidance counselor and two educational assistants are suppported by Chapter I funds. The program's 15 E.S.L., native language arts, and bilingual content-area teachers are supported by a combination of tax-levy, Module 5B, and Chapter I funds.

The implementation of the program is strongly influenced by the school's overall organization and size. The principal is a strong supporter of bilingual education, and has years of experience in the field, as does the A.P. who was a former Title VII project director. The bilingual program, centralized under the A.P., parallels the school's mainstream curriculum. The A.P., the project director, and the bilingual staff work together to efficiently meet program objectives. The school's small size is an advantage because it permits a high level of personal contact and follow-up between staff members and students.

II. STUDENT CHARACTERISTICS

Project CIBE served 302 LEP students of Hispanic descent. The majority came from feeder junior high, intermediate, and non-public schools. Others, for whom South Bronx High School was their first English-language school, were admitted as port-of-entry students. In addition, some students entered the program after they had enrolled in South Bronx High School. New students were assigned to classes according to their scores on the Language Assessment Battery (LAB), which measures English and Spanish proficiency in listening, speaking, reading, and writing. Hispanic students who scored at or below the twentieth percentile on the English LAB and higher on the Spanish LAB were considered LEP and eligible for the program.

This year the program experienced a significant increase in enrollment from feeder schools and from walk-in admissions. Title VII funds were used primarily to serve students who had not previously been served under the Elementary and Secondary Education Act.

All students served by the program were members of low-income families that were eligible for the New York City Board of Education's free-lunch program. Sixty-two percent were recent immigrants. The majority of them were from Puerto Rico and several Latin American countries. (See Table 1.)

Fifty-seven program students (19 percent) left the program (see Table 2). Thirty-six students (12 percent) experienced an interruption in their schooling because of family moves to and from their country of origin or in the United States. Seven percent of the students who left

the program dropped out for job, family-related, or unknown reasons. One student graduated.

Fifty-five percent of the students were overage for their grade placement. Table 3 presents the program students by age and grade, respectively.

Whether they were recent arrivals or were born in the United States, students admitted to the program had not achieved linguistic proficiency in English. According to the project director, their educational background varied: although some had been well educated in their native countries, others had only minimal schooling; students from Latin America tended to be the most educated and literate in Spanish. She also felt that students who remained in the bilingual program excelled academically, and some graduated at the top of their class. For example, the valedictorian in 1985-86 was a member of the bilingual program.

TABLE 1

Number and Percent of Program Students by Country of Birth

Country of Birth	Number	Percent
Puerto Rico	153	51
United States	48	16
Central and South America (country unspecified)	40	13
Dominican Republic	34	11
Honduras	22	7
TOTAL	297*	98

*Data were missing for five students.

•Fifty-one percent of the program students were born in Puerto Rico.

TABLE 2

Number of Students Leaving the Program

Reason For Leaving	Grade 9	Grade 10	Grade 11	Grade 12	Total
Graduated	0	0	0	1	1
Transferred to another school	5	5	5	2	17
Left U.S.A.	7	4	8	0	19
Dropped out (Job or Family)	0	1	1	0	2
Dropped out (Reason Unknown)	14	0	3	1	18
TOTAL	26	10	17	4	57

- Fifty-seven students (19 percent) left the program during the academic year.
- Most of the students who left were in the ninth grade.
- Twenty students (6.6 percent) dropped out for job, family, or unknown reasons.

TABLE 3

Number of Program Students by Age and Grade

Age	Grade 9	Grade 10	Grade 11	Grade 12	Total
14	15	1	0	0	16
15	33	13	1	0	47
16	45	26	10	0	81
17	36	21	25	3	85
18	14	13	19	9	55
19	6	1	0	4	11
20	0	0	3	2	5
21	0	0	0	0	0
22	0	0	0	1	1
TOTAL	149	75	58	19	301*
Overage Students					
Number	101	35	22	7	165
Percent	68	47	38	37	55

*Data were missing for one student.

Note. Shaded boxes indicate expected age range for grade.

- Fifty-five percent of the students were overage for their grade placement.
- The highest percentage of overage students occurred in grade nine (68 percent).

III. FINDINGS

The evaluation findings for the 1985-86 academic year include both objectives measurable by standardized tests and those that are assessable by an examination of program materials and records, site visits, interviews with school personnel, and a questionnaire completed by Title VII staff. In the following section the findings are presented by objective as proposed to and accepted by the Office of Bilingual Education and Minority Languages Affairs, U.S. Department of Education.

ENGLISH AS A SECOND LANGUAGE

-- As a result of participating in the program, students in E.S.L. 1 and E.S.L. 2 will master an average of one objective per twenty days of instruction on the beginning level of the Criterion Referenced English Syntax Test (CREST).

-- As a result of participating in the program, students in E.S.L. 3 and E.S.L. 4 will master an average of one objective per twenty days of instruction on the intermediate level of the CREST.

-- As a result of participating in the program, students in E.S.L. 5 and LED will master an average of 0.8 objectives per twenty days of instruction on the advanced level of the CREST.

Students were provided with intensive E.S.L. instruction for two to three periods each day. E.S.L. instruction focused on the development of the four basic language skills (listening, speaking, reading, and writing). Appendix B outlines E.S.L. instruction for the fall and spring semesters.

Students were taught English grammar, vocabulary, and idiomatic usage; they also were taught survival skills needed for daily living. Reading and writing skills were also developed in order to prepare

students for the Regents Competency Test and for citywide examinations. According to the project director, bilingual students are often better prepared for these tests in English than native speakers because they receive more extensive formal instruction on the structure of the language than mainstream students.

Classes were conducted by teachers funded by Chapter I, by P.S.E.N., or by basic tax levy, with the assistance of four paraprofessionals, two of whom were funded by Chapter I. New York State's high school E.S.L. curriculum was used.

The project director and Chapter I staff development specialists assisted the A.P. with individual teacher training and demonstration lessons all designed to provide three E.S.L. teachers who taught out-of-license with E.S.L. teaching essentials.

A member of the evaluation team visited two E.S.L. 2 classes and one E.S.L. 4 class. The students in E.S.L. 2 were taking their second semester of first-year English. Both of the E.S.L. 2 classes were observed in the computer lab, to which the E.S.L. teachers had gotten access by making weekly requests to the office of the A.P. for supervision. The facilities of the computer lab were used to review grammar and composition lessons, and to write personal and business letters and essays. Students were able to save their work on disks by using personal identification numbers. This enabled the teacher to identify and evaluate students' work.

The first E.S.L. 2 class that was observed had 11 students in attendance of an enrollment of 12. The lesson for the day was a review of verbs. Students were told, in English, to type their names and identification numbers into the computer and then to go ahead and work on the lesson independently. They were using a review program on verbs from the Hartley Create Lessons Series/Educational Software for IBM. Since there were only six programs available for the class, students had to double-up at each computer. Every individual got an opportunity to go through the review program once. The program reviewed the definition of a verb and then asked students to pick the verbs from lists of words, from individual sentences, and from paragraphs. The program corrected any mistakes the students made. Students then were given another chance to select the correct answer before the correct answer appeared on the screen. After the verb lesson, the students completed a similarly structured lesson on adjective placement and agreement. After these two lessons, the students keyed into the computer the solutions to exercises that had been handed out to them by the teacher. The topics of these exercises were changing affirmative sentences to negative, forming questions using the underlined parts of a sentence (subject, object, adverb, prepositional and adverbial phrase), and answering questions that reviewed the correct use of "who," "what," "when," "where," and "how." The students' responses were stored on diskettes; corrected versions were copied on the printer.

Throughout the lesson the teacher and a paraprofessional moved around the classoom working with individual students. The students were very attentive to their work. The teacher of this class took students to the computer room at least once a week, where they reviewed lessons that had been taught in class earlier in the week. According to the teacher, the computer played important part in keeping her students interested in their classwork. Students tended not to be absent from class on computer day. The teacher herself had recently learned to use the computer by attending the after-school workshop that was offered by the school. She was excited about the instructional uses of the computer and had increasingly integrated it with her teaching. For example, this year she gave all her exams by computer. A paraprofessional who specialized in computer usage was present throughout her class to answer any questions the teacher or students had. According to the paraprofessional, teachers who had incorporated computers into their teaching liked them very much.

The second E.S.L. 2 class that was observed had an attendance of nine students, of an enrollment of 14. The class was on writing a personal letter on the computer. Before the students proceeded to the computer, the teacher reviewed the parts of a letter (date, salutation, body-message, closure, and signature), punctuation, and paragraph formation. The teacher lectured in English. Although she had asked the students to speak in English too, they used both Spanish and English. They did, however, participate actively. After the review, a letter was outlined on the board and students were chosen on a voluntary basis to go to the board to fill in the blank parts. It was only after this verbal,

written, and visual review was completed that students were permitted to put their diskettes into the computer and access their files. The teacher told students to write a letter (six sentences long) informing a friend about their plans for the summer. These instructions were also written on the board and reviewed aloud by the class to ensure that everyone clearly understood the assignment. Only then did class members proceed to write their letters. When the letters were finished, the teacher or the paraprofessional discussed corrections with students and then printed the corrected version for the students to take home.

The third E.S.L. class that was observed (E.S.L. 4 Reading) was held in a regular classroom. Twenty-four of the 27 students who were enrolled were present. Students had been in the program for two years and were in their fourth term of E.S.L. The aim of the lesson that was observed was to discuss the author's purpose in writing a story that the students had read. Before the discussion, the students were asked to give synonyms for a list of words that had occurred in the story. Then, through a series of questions, the students were asked to reconstruct the setting, sequence of events, plot, and resolution of the story. This was followed by the teacher's question, "Do you like to read?" Most students replied affirmatively. They then were asked to list the benefits of reading. The list included reading for information, for increasing one's vocabulary, for improving one's English, and to understand people and one's self. The discussion then turned to the reasons why authors write stories. The reasons enumerated were: to get people to act in a certain way, to entertain, and to make money. This was

followed by the observation that the reasons for reading and for writing were not identical. The remainder of the class was devoted to analyzing Nathaniel Hawthorne's purpose in writing "David Swan." The class concluded that Hawthorne wrote this story to stimulate introspection and to give some advice about not missing life's opportunities.

The students generally were attentive and participated actively in the class. They seemed fully engaged in the process of analysis that the teacher's questions had provoked in them. Their English was very fluent. The teacher of this class had been at South Bronx for five years, thereby supplying continuity to the program's E.S.L. staff. His active involvement with students had contributed significantly to the program's success. He had edited "El Vocero Bilingue," a newsletter for bilingual students, in 1985-86. In 1986-87, the bilingual resource teacher, in conjunction with the students and staff, was to coordinate the production of the newsletter with a new computer program. This E.S.L. teacher was also responsible for involving program students in writing a series of student publications, including A How-to Manual of Valuable Information, South Bronx High School Students Speak About Their School, and Bilingual Students Write To Their Teachers.

Student Achievement in E.S.L.

The CREST* was used to measure mastery of the syntactical skills taught in the E.S.L. curriculum. The CREST was administered at the beginning and at the end of each semester. A mastery score was computed for each student by calculating the difference between pretest and posttest results. The number of months of instruction between testings was computed for each student by multiplying the number of months between testings by the student's attendance rate. The number of skills mastered per month was calculated by dividing the mean mastery by the mean number of months of instruction between testings.

Table 4 presents the test results for students who were pretested and posttested at the same level. Of the students who were reported to be taking E.S.L. classes (Levels 1, 2, and 3), complete data (levels, pretest scores, and posttest scores) were available for 80.3 percent (208 students) in the fall and 56.6 percent (171 students) in the spring.

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*The Criterion Referenced English Syntax Test (CREST) was developed by the Board of Education of the City of New York to measure mastery of instructional objectives of the E.S.L. curricula, and thus was constructed to maximize content validity. The test contains four items per curricular objective, and mastery of an objective is achieved when three of these items are answered correctly. The test measures mastery of 25 objectives at Levels 1 and 2, and 15 objectives at Level 3. The Kuder-Richardson reliability estimates for pretest and posttest administrations of the three levels of the CREST are:

Level 1 -- pretest (.91)/posttest (.96)
Level 2 -- pretest (.94)/posttest (.95)
Level 3 -- pretest (.91)/posttest (.91)

Examination of Table 4 reveals that program students tested at Levels 1 (beginning) and 2 (intermediate) surpassed the proposed objectives in the fall and the spring terms. In the fall, students mastered an average of 1.6 CREST objectives per month at Levels 1 and 2, and an average of 1.8 CREST objectives per month at these levels in the spring. In both the fall and spring semesters, students who were tested at Level 3 (advanced) mastered 0.6 CREST objectives per month of instruction. This rate was not significantly lower (two-tenths of 1 percent) than the criterion proposed by the objective; thus the objective was achieved.

Students tested at Level 3 had lower performance rates than those tested at lower levels, partly because fewer skills are tested at that level and partly because mastery of objectives takes longer at that level.

TABLE 4

Results of the Criterion Referenced English Syntax Test

Test Level	Number of Students	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Mastery Mean	Mastery S.D.	Mean Mastery Per Month
				FALL				
1	97	8.8	5.6	14.4	5.9	5.6	3.4	1.9
2	59	13.9	6.2	18.2	5.9	4.3	2.5	1.4
3	52	10.4	2.8	12.3	2.9	1.9	1.4	0.6
TOTAL	208	10.7	5.6	15.0	5.6	4.3	3.1	1.4
				SPRING				
1	62	9.6	5.9	15.3	5.9	5.7	3.1	2.3
2	58	14.6	6.4	18.1	6.0	3.5	2.5	1.3
3	51	10.4	2.9	11.9	2.5	1.5	1.6	0.6
TOTAL	171	11.5	11.5	15.3	5.7	3.8	3.0	1.5

•The program students surpassed the criterion set by the objective at Levels 1 and 2 both semesters.

NATIVE LANGUAGE ARTS AND CONTENT-AREA SUBJECTS

--At least 70 percent of the students will score at or above the 65 percent passing criterion in each of the subject areas (E.S.L., E.S.L. reading, native language arts), each semester.

Students in the program received native language instruction to increase their fluency in their native language as well as to fulfill the three-year sequence required for high school graduation. Students were placed in classes according to their level of oral proficiency. Appendix C lists the native language arts (N.L.A.) courses offered in the fall and spring semesters.

All Spanish classes were taught according to the curriculum of the New York City public schools. According to the project director, all program students who complete this three-year sequence pass the New York State Regents examination.

Twenty-seven of the 28 students enrolled were present the day a Regents Spanish 6 class was observed. The lesson focused on defining the best strategies for reading and oral comprehension, in preparation for the Regents exam. After reviewing the definition of "dialogue" with students, the teacher had a dialogue with the class by asking the students questions that they had to answer first in writing and then aloud. Later, the teacher reviewed the best ways to read and understand a paragraph. After making sure the students understood his directions, they were asked to read several paragraphs from their Regents booklets and then to answer the questions that followed. The teacher moved through the classroom, giving individualized attention to the students

as they worked on their assignment. Afterwards, students read the paragraphs aloud, answering the questions that followed each one. The principal idea of every paragraph and the definitions of some vocabulary items were then discussed.

Spanish was the language of the classroom. Students were attentive and answered the teacher's questions enthusiastically. Humor frequently characterized both the students' responses and the teacher's corrections. The teacher frequently praised students for their work. He also probed continuously for alternative responses to his questions.

N.L.A. teachers were assigned to work with students having deficient Spanish-language skills, and the A.P. for supervision worked with the foreign language department to help develop these students' skills in Spanish grammar, writing, and reading comprehension. Special attention was given to improving their reading and writing skills through the use of both language and content-area (science, social studies) materials.

Student Achievement in E.S.L. and Native Language Arts Courses

Table 5 presents the passing rates for program students in E.S.L., E.S.L. reading, and native language arts. Examination of Table 5 reveals that overall, the objective was met in E.S.L., E.S.L. reading, and native language arts, with passing rates of 72.9 percent and 72.7 percent, respectively. Overall passing rates in E.S.L. were below the 70 percent proposed in the objective. Thus, the objective was partially achieved.

TABLE 5

Passing Rates in E.S.L., E.S.L. Reading, and Native Language Arts

Course	Fall		Spring		Total Overall Passing Rate
	Number of Students	Percent Passing	Number of Students	Percent Passing	
E.S.L.	282	63.8	265	63.0	63.4
E.S.L. Reading	221	72.4	203	73.4	72.9
Native Language Arts	215	80.0	199	64.8	72.7
TOTAL		71.3		66.7	69.1

•Overall, the objective was met in E.S.L. reading and in native language arts.

--Students participating in the program will score at or above the 65 percent passing criterion in bilingual math, science, and social studies at a rate that is equal to or greater than that of non-program students in comparable mainstream classes.

Content-area subjects were taught by tax-levy teachers who used the native language as a medium of instruction. The more advanced the course, the more English was used in the class. The curricula used in the bilingual content-area classes paralleled those in the mainstream; both followed New York State curricula. Appendix D lists the bilingual content-area courses for the fall and spring.

Members of the bilingual program staff maintained that some instruction in the students' native language enabled them to learn content areas without being hampered by their low level of English proficiency. However, program students were fully integrated with mainstream students in art, gym, music, and shop classes, as well as in schoolwide assemblies.

Mainstreamed students (those who accomplished 80 percent of the CREST instructional objectives and reached the twenty-first percentile of the LAB) had the option of remaining in the program with parental consent. Some students chose to stay in the program for certain subjects (e.g., social studies), because of vocabulary problems. Other mainstreamed students had problems with English literature, but generally they managed to do well. The project director followed students' progress through contacts with their grade advisors.

A member of the evaluation team observed two bilingual content-area classes, global history 2 and sequential math 2. Twenty-four of the 26 students enrolled were present in the global history class. The lesson observed focused on Napoleon and the French revolution. The class began with a review of the geography of Europe. Students were asked to

identify various countries on a map and give their names in Spanish and English. During this period, the paraprofessional took attendance and checked students' homework assignments. The teacher then gave students a nine-question in-class assignment reviewing the French revolution and the contributions of Napoleon. The teacher and the paraprofessional helped students on a one-to-one basis while they worked on the 15-minute assignment. The teacher then elicited the students' answers to the questions. She emphasized the need for thinking precisely by frequently asking students to clarify and amplify their answers. After the correct answer was given, students copied it into their notebooks. The students' eagerness to answer the teacher's questions was shown by the large number of raised hands. Spanish was the predominant classroom language, but some English was used during the discussion of the geography of Europe. The teacher, of Spanish origin, had taught in the school for four years, and the paraprofessional had worked with her for the last two years. The teacher had developed a Spanish text for American History I and was completing one for American History II. She was a tough and demanding teacher, and had high expectations for her students.

The sequential math class that was observed had an attendance of 15, of an enrollment of 16. The students in this class had been in the program for two years and had taken the bilingual fundamentals of math course in the previous year. The lesson that was observed was on solving linear equations graphically. The students were given a series of problems to solve and graph. Time was allotted for students to solve each problem at their desks, with the teacher and the paraprofessional helping students individually. Students were then selected to write

their solutions on the board, with the rest of the class reviewing their work and the teacher acting as facilitator. In reviewing these problems aloud with the students, the teacher covered not only the solution to the specific problem but also the general procedures and thought processes that were involved. The students were responsive and participated actively in the class. Spanish was the predominant language of both instruction and student-teacher communication. Instructions were written on the board in both Spanish and English, but explanations were provided primarily in Spanish. This was a Regents math class and students were preparing to take the exam in June. Last year, the passing rate of bilingual Regents math classes was much higher than that of mainstream classes, largely because of the teacher's excellent skills. It was expected that most students in this class would move into a mainstream math class in 1986-87.

Student Achievement in Content-Area Subjects

Table 6 presents the passing rates for program and mainstream students in mathematics, science, and social studies courses each semester. The statistical significance of the difference between program and mainstream passing rates was determined through a z-test for the significance of difference between two proportions.* This procedure tests whether the difference in the rates of two independent groups is greater than can be expected by chance variation.

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*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

Examination of Table 6 reveals that the objective was met in two of the three areas. Passing rates of program students were equal to those of mainstream students in mathematics and significantly greater than mainstream students in science ($p = <.05$). The objective was not met in social studies courses, in which the passing rate of program students was lower than that of mainstream students.

TABLE 6

Passing Rates for Program and Mainstream Students in Content-Area Subjects

Course	Bilingual Program		Mainstream Classes		
	Number of Students	Percent Passing	Number of Students	Percent Passing	z
			Fall		
Mathematics	209	53.6	319	52.3	1.09
Science	170	60.6	257	48.2	2.51*
Social Studies	234	43.2	290	55.9	-2.89*
			Spring		
Mathematics	140	44.3	157	44.6	-0.05
Science	145	71.0	198	56.1	2.81*
Social Studies	212	45.8	200	56.0	-2.06*

*Statistically significant at the .05 level.

- The objective was met in mathematics and science.
- Program students had significantly ($p.<.05$) higher passing rates than mainstream students in science courses, both semesters.

COMPUTER-ASSISTED INSTRUCTION

-- By the end of each subsequent project year, an additional two computer instructional units will have been developed or identified by the resource teachers in the following area: E.S.L., native language arts, bilingual math, science, and social studies.

-- As a result of participating in the bilingual computer math class, students will show significant gains in computer literacy.

Title VII funds were allocated to support both computer-literacy instruction and computer-assisted instruction for CIBE participants. However, during the project's first year of funding the implementation of these goals was impeded because personnel changes (project director and resource teacher) reduced the number of computer instructional units that could be developed.

In order to review and evaluate software and to translate software instructions from English to Spanish, the project director requested and received permission to convert the resource teacher line into a per-session line. This permitted review and evaluation work to be completed during the summer of 1985, with the assistance of the office aide, two program teachers, and the A.P. for supervision. Permission was also requested and received to translate the current mainstream computer-literacy curriculum into Spanish during the summer.

In the summer of 1985, staff members previewed and evaluated all the software packages that had been purchased during the school year and made decisions about the applicability of particular packages to the various components of the bilingual program. (A written evaluation was completed for each software package.) Staff members also revised and translated the mainstream curriculum for Computer Literacy I and II.

During a staff development day in the fall, teachers were introduced to the software that had been reviewed and evaluated, and a list of this software was also given out. The software itself, together with a set of written evaluations, was kept in the office of the A.P. for supervision so that teachers could review available software that interested them. The A.P. also kept a copy of the New York State Software Review Databank for faculty use. However, the school did not own most of the software that was mentioned in the state databank.

A full-time resource teacher was hired in the fall of 1985 to develop curriculum. She was primarily involved in translating software-user instructions and content for the bilingual classes. This year, she translated three units of a social studies program into Spanish. The Spanish-language instructions and content for each lesson were distributed to students in the form of handouts, which they could use when working with the (English-language) social studies program. The resource teacher also translated instructions for the P.F.S.-Write program used in E.S.L. and word-processing classes. As well, the resource teacher translated pertinent units of a business software manual that had been created by the A.P. for business.

During the 1985-86 school year, the bilingual program purchased some software that previously had been approved by the Board of Education. Requests to purchase such software were more readily approved than those for previously unapproved software. In general, the program did not experience the delays in 1985-86 that had been caused in the previous year when many purchase orders were returned and then had to be resubmitted.

Four computer labs were operational in the fall of 1985. Three labs were equipped with 17 IBM personal computers each and one lab had 26 Tandy terminals. Each computer lab had four printers. In addition, two labs had television monitors for classroom-wide instruction. All four labs were in use approximately 85 percent of the time. Weekly lab-use schedules were finalized by the A.P. for supervision on the basis of lab-use requests submitted by teachers. Each lab was the full-time responsibility of a computer paraprofessional who "booted-up" machines with the appropriate software for each class and helped teachers whenever necessary.

In addition to the labs, the bilingual program had five IBM PC terminals and printers of its own. Placed on carts, these machines moved from class to class as needed. Teachers scheduled their use through the bilingual program office.

The project director visited each E.S.L. class two times in both fall and spring to familarize students with computer terminal use. She reviewed the keyboard, introduced students to the P.F.S. Write program, and gave lessons on the application and use of the function keys.

Teachers were required to review the correct computer operating and safety procedures with students at the beginning of each semester. To further insure proper use, each student was given a copy of the "Principles of Safety in a Computer Room," which discussed how to care for and use the computer terminal, printer, disk drive, and diskettes. Students and their parents were required to read and sign these safety rules. In addition, before they were permitted to operate computer equipment, students had to pass a "Safety Test for Computer Lab."

Both students and teachers were receptive to the incorporation of computers into the bilingual curriculum. Computer-assisted instruction was offered in the content areas, E.S.L., and native language arts. Instruction in computer literacy (computer literacy I and II) and word processing (bilingual keyboarding/word processing) were introduced during the year under review. In the computer literacy classes, students were taught the BASIC computer language. They also practiced programming skills in their math classes. The bilingual keyboarding/word processing classes familiarized students with the use of the keyboard and the overall working of the word processor. In addition, students were taught business applications of the word processor, along with appropriate terminology.

Computer literacy I and II were offered as electives by the math department and paralleled the mainstream curriculum. The text, Spotlight on Computer Literacy, was translated and revised by the computer-literacy teacher. One computer literacy I (term 1) class was offered in the fall. In the spring, there were three computer literacy I classes and one computer literacy II (second term) class. According to the project director, registration for the computer literacy II class was low because of scheduling conflicts, not lack of interest. In following years, the program intended to schedule the class at a time that would allow more students to enroll.

A member of the evaluation team visited two computer literacy classes. The computer literacy II class that was visited had six students present of an enrollment of nine. The subject of the lesson -- how to develop a flow chart and a computer program to classify angles -- was explained

clearly on the board in both Spanish and English. Students were asked to classify five different angles (acute, obtuse, plane, right, reflex) that had been drawn on the board. This task was first completed individually and then reviewed on the board, where selected students had written their answers in both Spanish and English. After the teacher had elicited the correct definition of each angle from the class, the students proceeded to devise a plan for classifying angles under the teacher's guidance. The teacher first wrote the problem to be solved on the board in English, read it, and then restated it in Spanish. The teacher then elicited each step of the plan from the students. Once a plan had been completed, a flow chart continuing the steps that had been listed in the plan was drawn on the board. Again using as much student input as possible, the teacher developed a computer program based on the plan and the flow chart. The program was then written in BASIC, using appropriate codes and terminology. Students inputted the final version of the program into their terminals and ran it on their computers.

Each step of the lesson had helped students understand the logic of computer programming. At the same time, the lesson reinforced the students' knowledge of the different kinds of angles. The lesson was taught bilingually, with English usually written on the board and Spanish spoken. The teacher made sure that all the students understood the problem and were actively involved in solving it.

Every student in this class had to complete a final project to pass the course. The project entailed solving 24 mathematical problems and creating a program for each one. Students were given two weeks to

complete this assignment and submit it in a hard-copy form. The final exam for the class was identical to the one given to mainstream classes except that it was in Spanish.

The second computer literacy class that was visited was computer literacy I. The entire 19-student enrollment was present. The lesson that was observed was on how to create a computer program for withholding taxes from salaries. The aim of the lesson was written on the board along with a preparatory DO-NOW problem on the deduction of sales tax from the price of a product. After this problem was solved and reviewed aloud by the class, the teacher developed a step-by-step plan for deducting taxes from salaries. A computer program based on this plan was then written in BASIC, including codes and commands to enable the computer to determine net pay after taxes. Students then inputted this program into their computers and ran it using several different prices and tax rates.

One paraprofessional was present to assist students individually. The teacher was careful to review basic mathematical concepts before asking them to write the computer program. Spanish was the language of instruction, but English was used to write the plan and the program. Students were attentive and involved in the class. This particular teacher had obtained excellent results from students in all of his classes. He taught computer literacy I and II, tenth-grade Regents math, and sequential mathematics; he also translated and revised the curriculum for all three classes. Although he enjoyed teaching tremendously, he found that preparing for three different daily courses was very burdensome.

The bilingual typing and bilingual word processing classes were taught by one bilingual teacher working under the supervision of the A.P. for business. Both classs were held in the Tandy lab, where there were 26 computers and four printers. The bilingual typing course was a requirement for all program students. In it, students were taught to type and given practice in the keyboarding skills necessary for preparing business documents. This year, students in bilingual typing were taught on electric typewriters during the first semester and on computers during the second semester. Next year, this course will be re-named keyboarding I and II, and students will begin working on the computer during their first semester.

One of the two bilingual typing II classes which were observed had an attendance of 13 students, of an enrollment of 15. The topic was arranging a business letter in semi-block style. To warm up, students were asked to type from their text for five minutes in order to measure their typing speed. The students completed this assignment in a quiet, orderly manner. Then the students read aloud from a letter in their textbook and discussed the characteristics of a letter versus those of a memo and how to format the former. This was followed by a series of questions that reviewed the letter's vocabulary and content. The teacher used both Spanish and English to ask questions, give directions, provide clarification, and give praise. Finally, the difference between semi-block and block formats was reviewed and the students then were asked to write a letter on their computers in semi-block style.

Although the classroom materials and text were in English, the students' letters were in Spanish. They were given vocabulary review

sheets and quizzes on a weekly basis. The vocabulary reviews included terminology relating to word processing, computers, employment practices, types of businesses and jobs, and union membership. The instruction that was provided was thorough and made use of both languages. The teacher had a good relationship with students, and they were attentive. There were, however, two minor problems involving the physical layout of the computer lab. First, students had neither stands nor sufficient table space for their typing books. As a result, they had to put their books on their laps or to the side. In either case, the books had to be laid down flat, and this made them hard to read.

A discussion with the A.P. for supervision indicated that he was aware of this problem. He pointed out that the school had received money for the construction of the labs and the purchase of computer hardware, but no money for such things as free-standing typing stands, dust covers for the terminals, polarized screens to minimize glare, and vacuum cleaners to clean the labs. The second problem that was observed was inadequate classroom lighting. This was because in the absence of air conditioning, the lights had to be turned off to mininize the generation of heat.

In the bilingual word-processing classes, students are taught the word-processing skills they need to succeed at the workplace. This is an elective and students are chosen for it based on the instructor's recommendation.

One bilingual word-processing II class was observed. It had an enrollment of eight, of whom five were present when a member of the

evaluation team visited the class. The aim of that day's lesson was to paginate a multipage document. The class began with a review of word-processing concepts (justification, document assembly, global search, and replace) that had been discussed in the text. They then typed a three-page letter, paginated it, saved it, and printed it. Students worked at their terminals individually and printed their own documents. The teacher walked around the room helping anyone who needed it. After completing this assignment, the class went to on discuss additional word-processing concepts. The teacher asked students about how to revise documents; how to create and remove a block indent; and how to justify a document. The use of specific function keys was also discussed. Students were then told to key in and justify a paragraph from their text. The teacher used both both Spanish and English to present and discuss material. However, the students' assignments, text, and classroom materials were in English. Students could use either language in class. Throughout the lesson, students were attentive and concentrated on their work.

This year, the project director visited several other high schools to review and evaluate software programs already in use. Assuming the funding source approves the necessary reallocation of monies (as it did for the previous year), plans are in place for the A.P. for supervision, the project director, the resource teacher, and two teachers, assisted by an office aide to evaluate and translate software for bilingual classroom use during the summer of 1986. These staff members would finish translating social studies software, evaluate additional E.S.L. units, and adapt materials from the English department for E.S.L. use.

In addition, the mainstream curricula for chemistry and American history II would be revised and translated into Spanish.

The school had recently received five thousand dollars from tax-levy and Chapter I funds to purchase software. According to the A.P. for supervision, the school needed additional software for the content areas, particularly in science and social studies.

South Bronx High School was selected as a pilot school for a comprehensive software package program that will be implemented in the fall. The package will cover both reading and content areas. According to the A.P., it has been difficult to fully integrate software with the educational curriculum because much of it has proven suitable for review purposes only.

The school expects to receive two thousand dollars from the state to purchase software. This will barely pay for two programs. For example, a single cell-biology lab package that was purchased this year cost over one thousand dollars. Thus, in addition to the problem of finding suitable software for the content areas, the school must contend with its high cost.

Student Achievement in Computer Literacy

The objective proposed that students would show significant gains in computer literacy. Eighty-five students were pretested with a program-developed test in the fall, and 69 students were posttested in the spring. Complete pretest and posttest data were available for sixty-four students; nine had been absent for the posttest, and 11 no longer attended school. The pretest mean was 4.2 (s.d. = 2.1) and posttest mean was 8.7 (s.d. = 1.5). Therefore students' knowledge of computer

literacy was greater and more homogeneous at posttest. The mean gain was 4.5 (s.d. = 2.9), which was statistically significant. Thus, the objective was met.

STAFF TRAINING

-- All staff members will be trained in educational aspects related to E.S.L., bilingual education, native language arts, and computer education through attendance at workshops, seminars, conferences, and courses at institutions of higher education.

This year, every program staff member received computer training, thus meeting the program objective. Computer workshops were the focus of two staff development days in September and January. In addition, the A.P. for supervision provided computer training to all faculty members in a series of workshops held during and after school hours throughout the year. One set of workshops, held twice weekly for eight weeks, familiarized teachers with the software (P.F.S. Series) currently being used with the school's IBM PCs.

All teachers attended monthly departmental meetings that included discussions of professional topics. In addition, the project director and Chapter I staff provided both demonstration lessons and individual assistance on computer use to E.S.L. and N.L.A. teachers. (Appendix E details staff-development activities during 1985-86.)

Teachers and paraprofessionals also attended conferences and university courses relating to bilingual education, E.S.L., and computer education. The project director attended the National Association of Bilingual Education Conference and took two graduate courses this year. Several teachers took university courses in their content areas. In addition, three educational assistants were studying for bachelor's degrees. One

paraprofessional had completed her degree and was studying for her license exam in Spanish. (Appendix F lists the university courses taken by staff members.)

PARENTAL INVOLVEMENT

-- The Bilingual Parent Advisory Committee will hold at least two meetings per year.

Meetings of the Parent Advisory Committee were held in the fall and the spring to discuss the goals of the CIBE project, thus meeting the program objective. Members of the Advisory Committee also conducted classroom visits to see project students and teachers in action. Parents attended Awards Night and participated in luncheons and shows organized for Puerto Rican Discovery Day and Pan American Day. Semi-weekly E.S.L. classes were held for the parents of CIBE students. Approximately 12 parents participated in these classes during the spring. In addition, parents, bilingual students, and teachers all participated in a spring production of Southside Story. However, despite the telephone invitations to parents to attend schoolwide functions that were made by the bilingual counselor and the educational assistant, their participation generally was low. In addition, the program still had problems in getting parents to attend its own meetings. However, parents did not hesitate to come to the school on an individual basis whenever they had particular concerns, or when they were called in by the bilingual dean to discuss their child's disciplinary problems.

An effort was being made to provide childcare facilities locally in order to enable students with children to continue in school, and to enable program students' parents who also had young children to visit the school. The school principal was working actively on this project in conjunction with other neighborhood schools and agencies.

One success in the area of parental involvement this year was the publication of a bilingual newsletter, "El Vocero Bilingue," which was received three times this year by parents of program students. The newsletter informed parents about educational programs, cultural events, and meetings. A special page on issues of concern to parents was included in the newsletter's final (May) issue for the school year. The newsletter also included descriptions of bilingual program courses, the bilingual honor roll, calendars of school events, poetry, interviews with students, film reviews, and articles on culture, education, and health. A new computer program will be used to format the 1986-87 newsletter. Four issues are planned for that year.

ATTENDANCE

The statistical significance of the difference between program attendance and school attendance was determined through the application of a z-test for the significance of a proportion.* This procedure tests whether the difference between one proportion (the program's attendance) and a standard proportion (the school's attendance) is greater than what can be expected by chance variation.

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*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

The attendance rate for program students was 86.2 percent, approximately 17 percentage points above the schoolwide attendance rate (69.1 percent). The z-test results ($z = 6.26$) indicated that the attendance rate of program students was significantly higher ($p = <.05$) than the schoolwide rate.

IV. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Computers in Bilingual Education (CIBE) program at South Bronx High School completed its second year of operation in June 1986. Students who participated in the program received whole class and computer-assisted instruction in E.S.L., native language arts, and bilingual content areas that paralleled the mainstream curriculum. The CIBE program also provided instruction in bilingual computer literacy and word processing.

In the bilingual program, the project director visited each E.S.L. class in the fall and the spring to familiarize students with the computer terminal. Paraprofessionals were assigned to each computer lab to aid with computer-assisted instruction. In the computer-literacy classes, students were taught BASIC and learned computer programming while at the same time enhancing their problem-solving skills in mathematics. Bilingual keyboarding I and II and bilingual word processing I and II were two specialized courses which were offered under the supervision of the A.P. for business.

Both students and teachers appeared enthusiastic about the use of the computer in the bilingual program. According to the A.P. for supervision, it has been difficult to find software (particularly in the content areas) that can be integrated with the school's curriculum.

Plans are in place for the A.P. for supervision, the project director, the resource teacher, two teachers, and an office aide to evaluate

additional software and translate existing software for bilingual classroom use during the summer of 1986.

Although the program is still having problems getting parents to attend meetings, parents do visit the school regularly on an individual basis. Efforts are being made to provide childcare so that parents can become more involved in the school activities. One success this year in the area of parental involvement was the publication of a bilingual newsletter, "El Vocero Bilingue," to inform parents about the academic program, cultural events, and parents' meetings.

In 1985-86, the program successfully provided students with instruction in computer use while maintaining a stable, coherent, and consistent academic program. The factors that contributed to this success were:

1) an experienced staff committed to academic excellence in both Spanish and English;

2) the ability of the program to build on curricula developed in previous Title VII projects and to maintain continuity between the bilingual and the mainstream curriculum;

3) the program's organization under the A.P. for supervision (a former Title VII project director), which prevented its separation or segregation from other academic departments;

4) open lines of communication and mutual support between administration and program staff;

5) the availability of the administration and program staff to students and parents; and

6) the underlying philosophy of mutual respect and academic excellence that was shared among administration, faculty, staff, and students.

During the 1985-86 school year the program achieved its objectives in E.S.L., mathematics, and science, and computer literacy. It partly met its native language arts objective, but did not meet its social studies objective.

RECOMMENDATIONS

On the basis of several site visits, classroom observations, and interviews with program personnel, the evaluation team makes these recommendations:

1. To increase parental participation, the school might schedule some cultural events and/or parents' meetings on weekends. Educational opportunities, including E.S.L. instruction and/or training in word processing, might also be offered on weekends. Most activities for parents are currently held during the school day (e.g., Puerto Rican Discovery Day) or the early afternoon (e.g. E.S.L. classes). This might be preventing working parents from participating in more school functions.

The bilingual program might also want to consider having a parents' column in the bilingual newsletter where parents could voice their concerns. Parents could also be encouraged to submit original poetry or art work (e.g. sketches, drawings, etc.) to the newsletter. In addition, students might want to do a series of oral-history interviews that document their parents' migration experiences, life in Puerto Rico/Latin America, and experiences in the United States for the newsletter.

2. To prevent staff burn-out, highly qualified and experienced teachers should be encouraged to work with less experienced parapro-

fessionals in the classroom and to give demonstration workshops for new teachers. In this way, others could learn effective teaching techniques so that they can better be able to share the teaching load. The three paraprofessionals studying for degrees in teaching should be encouraged to complete their studies and get their teaching licenses. In the meantime, they should be integrated as much as possible with classroom activities. Paraprofessionals should also be encouraged to attend teacher-training workshops, professional meetings, and conferences in order to enhance their skills.

3. The school may want to consider purchasing an additional air-conditioner for the Tandy lab to control the heat that emanates from the 26 computers. This would eliminate the need to turn the lights off during class.

4. The school might also investigate ways to acquire typing stands for the bilingual typing and word-processing classes. It might consider seeking donations from a local office supplier or business.

5. A list of the program-developed curricular materials and software in E.S.L., social studies, Spanish, math, and science might be compiled and made available to other programs serving similar student populations.

V. APPENDICES

APPENDIX A

Staff Characteristics: Professional and Paraprofessional Staffs

Title/Function Note: Please do not include names	Percent Time in Each Function	Education (Degrees)	Is person licensed or certified for this title/function? (Y/N/NA)	Total Yrs. Experience Education	Years Relevant Experience Bilingual/E.S.L./ Foreign Language
ESL TEACHER	1.0	BA SOCIAL STUDIES MA HEBREW	YES	23	8
ESL "	1.0	BA	YES	3	2
ESL "	1.0	BA - EDUCATION SPANISH	NO	4	3
ESL "	1.0	BA - ENGLISH	NO	4	4
ESL "	1.0	BA - EDUCATION MA - ENGLISH	YES	9	9
ESL "	1.0	BA FRENCH & SPANISH	NO	2	2
ESL "	.4	BA - HISTORY	NO	1	1
SPANISH TEACHER	.4	BA - SPANISH MA - SPANISH	YES	16	16
SPANISH	1.0	BA - HISTORY	NO	2	1
SPANISH/BIL. MATH	.8/.2	BA EDUCATION MA GUIDANCE	NO	35	10

Staff Characteristics: Professional and Paraprofessional Staffs

Title/Function Note: Please do not include names	Percent Time in Each Function	Education (Degrees)	Is person licensed or certified for this title/function? (Y/N/NA)	Total Yrs. Experience Education	Years Relevant Experience Bilingual/E.S.L./ Foreign Language
SPANISH TEACHER/BIL. GRADE ADVISOR	.6/.4	BS - EDUCATION MA - BIL. ED.	YES	8	7
BIL. SCIENCE TEACHER	1.0	BS SCIENCE	YES	7	5
BIL. MATH TEACHER	1.0	BS MATH	YES	3	2½
BIL. MATH TEACHER	.6	BA HISTORY	NO	2	1
BIL. SOCIAL STUDIES TEACHER	1.0	MA HISTORY PHD	YES	16	5½
BIL. GUIDANCE COUNSELOR	1.0	BA EDUCATION (SPANISH) MA EDUCATION (SPANISH) MA COUNSELING	YES	14	5
BILINGUAL DEAN	.4	BBA MARKETING MA - SPECIAL ED.	NA	8	3
EDUCATIONAL ASSISTANT	1.0	BA SPANISH	NA	21	6
EDUCATIONAL ASSISTANT	1.0	-----	NA	16	9½
EDUCATIONAL ASSISTANT	1.0	-----	NA	6	4
EDUCATIONAL ASSISTANT	1.0	-----	NA	1	1

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APPENDIX B

Instruction in English as a Second Language and English Reading (Fall)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Periods Per Day	Course Description	Curric.*	Texts/Materials in Use
ESL 1	3	1	3	61	61	2	ESL STRUCTURE TERM 1	P, S	PATHWAY TO ENG.
ESL 2	3	3	1	65	65	2	" " " 2	P, S	" " "
ESL 3	2	0	0	51	51	2	" " " 3	P, S	" " "
ESL 4	2	2	1	33	33	2	" " " 4	P, S	" " "
ESL 5	1	1	0	30	30	1	" " " 5	P, S	See Attached
ESL READING 1	2	1	1	61	61	1	ESL READING TERM 1	P	" "
" " 2	3	3	3	65	65	1	" " " 2	P	" "
" " 3	2	0	0	51	51	1	" " " 3	P	" "
" " 4	1	0	0	33	33	1	" " " 4	P	" "
" " 5	1	1	0	30	30	1	" " " 5	P	" "
TRANSITIONAL ESL (LET1)	2	0	0	43	43	1	ESL FOR ENGLISH DOMINANT & TRANSITIONAL STUDENTS	P	" "

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S = NYS Curriculum P = Program-developed Curriculum

Instruction in English as a Second Language and English Reading (Spring)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Periods Per Day	Course Description	Curric.*	Texts/Materials in Use
ESL 1	2	0	1	29	29	2			
ESL 2	4	2	4	62	62	2			
ESL 3	2	2	1	50	50	2		Same As	Same As
ESL 4	2	2	2	28	28	2	Same As		
ESL 5	2	2	0	33	33	1			
ESL Reading 1	1	0	0	29	29	1			
2	2	2	0	62	62	1			
3	2	2	0	50	50	1			
4	1	0	0	28	28	1			
ESL Reading 5	1	2	1	33	33	1			SAME AS TABLE 5 Murders In The Ru
TRANSITIONAL ESL (LET2)	1	1	0	34	34	1			Morgue/ The Gold Bug. Writing Skil Management Progra

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COURSE TITLE & LEVEL	TEXT/MATERIALS IN USE
ESL 5	THE ENGLISH NOTEBOOK GRADED EXERCISES IN ENGLISH WRITING POWER
ESL READING 1	LINE BY LINE THE SHERIFF THE FIGHT FOR FRANKLIN STREET
ESL READING 2	NO HOT WATER TONIGHT ELEMENTARY COMPOSITION PRACTICE I
ESL READING 3	WHALES CAN SING ELEMENTARY COMPOSITION PRACTICE II
ESL READING 4	EASY READING SELECTIONS IN ENGLISH THE MAN WITHOUT A COUNTRY
ESL READING 5	BENJAMIN FRANKLIN THE EXTRA WHATEVER HAPPENED TO SANDY FOWLER
TRANSITIONAL ESL (LETI)	PATHWAYS TO ENGLISH 5 MOBY DICK

APPENDIX C

Instruction in the Native Language(s) (Fall)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Periods Per Day	Course Description	Curric.*	Texts/Materials in Use
SPANISH 1	2	0	0	56	0	1	SPANISH TERM 1	C	See Attached
SPANISH 3	2	2	0	43	5	1	" " 3	C	" "
" 3X	2	2	0	74	71	1	" " 3 (Native Speakers)	C	" "
" 5	1	0	0	28	3	1	" " 5	C	" "
" 5X	2	1	0	64	63	1	" " 5 (Native Speakers)	C	" "
" 7	1	0	0	29	6	1	" " 7	C	" "
BUSINESS SPANISH	2	0	0	58	51	1	BUSINESS SPANISH FOR NATIVE SPEAKERS	P	" "

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Instruction in the Native Language(s) (Spring)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Periods Per Day	Course Description	Curric.*	Texts/Materials in Use
SPANISH 2	2	2	0	50	0	1	SPANISH TERM 2	C	
" 4	1	1	0	32	3	1	" " 4	C	
" 4X	3	3	0	96	91	1	" " 4 (Native Speakers)	C	SAME AS
" 6	1	1	0	17	4	1	" " 6	C	
" 6X	2	0	0	56	48	1	" " 6X (Native Speakers)	C	
" 8	1	0	0	10	3	1	" " 8	C	
BUSINESS SPANISH 2	2	0	0	65	50	1	BUSINESS SPANISH TERM 2 FOR NATIVE SPEAKERS	C	

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COURSE TITLE & LEVEL	TEXTS/MATERIALS IN USE
SPANISH 1	PRIMER LIBRO AVENTURAS EN LA CIUDAD
SPANISH 3	SEGUNDO LIBRO LEYENDAS LATINOAMERICANAS
SPANISH 3X	SAME AS ABOVE
SPANISH 5	WORKBOOK IN SPANISH 3YRS. GALERIA HISPANICA ESPANOL A SENTIRLO
SPANISH 5X	SAME AS ABOVE
SPANISH 7	ANTOLOGIA DE CUENTOS PUERTORIQUENOS ESPANOL A SENTIRLO
BUSINESS SPANISH	MANUAL DE REFERENCIAS PERSONAL BUSINESS DICTIONARY

APPENDIX D

Bilingual Instruction in Subject Areas (Fall Semester)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Percent of Eng. Used	Course Description	Curric.*	Texts/Materials in Use
GLOBAL HISTORY 1	5	0	1	133	133	0	GLOBAL HISTORY - TERM 1 TAUGHT IN SPANISH	C, S	HISTORIA DE LA HUMANIDAD I
" " 3	2	0	2	68	61	0	GLOBAL HISTORY - TERM 3 TAUGHT IN SPANISH	C, S	HISTORIA DE LA HUMANIDAD II
AMERICAN STUDIES 2	1	0	0	20	14	30%	AMERICAN HISTORY - TERM 2 TAUGHT IN SPANISH (SOME ENG.)	C, S	HISTORIA DEL PUEBL DE LOS ESTADOS UNI
FUNDAMENTAL MATH 1	4	1	4	114	114	0	MATH FUNDAMENTALS IN SPANISH TERM 1	C, S	PRELIMINARY MATHEMATICS
" " 2	2	0	2	43	43	0	MATH FUNDAMENTALS IN SPANISH TERM 2	C, S	" "
BUSINESS MATH 1	1	0	0	29	29	0	BUSINESS MATHEMATICS 1	C	" "
SEQUENTIAL MATH 1	1	0	0	18	15	0	SEQUENTIAL MATH - TERM 1 TAUGHT IN SPANISH	C, S	" "
COMPUTER LITERACY 1	1	0	0	18	17	0	COMPUTER LITERACY - TERM 1 TAUGHT IN SPANISH	P	SPOTLIGHT ON COMPUTER LITERACY
GENERAL SCIENCE 1	3	0	1	96	96	0	GENERAL SCIENCE - TERM I TAUGHT IN SPANISH	C, S	INTRODUCCION A LA CIENCIAS QUIMICA
BIOLOGY 1	1	0	1	33	32	20%	BIOLOGY TERM 1 - TAUGHT IN SPANISH WITH SOME ENGLISH	C, S	BIOLOGIA
REGENTS BIOLOGY 1	1	0	1	27	24	20%	REGENTS BIOLOGY 1 - TAUGHT IN SPANISH WITH SOME ENGLISH	C, S	BIOLOGIA

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S = NYS Curriculum P = Program-developed Curriculum

Bilingual Instruction in Subject Areas (Spring Semester)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Percent of Eng. Used	Course Description	Curric.*	Texts/Materials in Use
GLOBAL HISTORY 2	4	0	3	105	105	0	GLOBAL HISTORY - TERM 2 TAUGHT IN SPANISH	C, S	HISTORIA DE LA HUMANIDAD
AMERICAN HISTORY 1	2	0	0	64	60	25%	AMERICAN HISTORY - TERM 1 TAUGHT IN SPANISH (SOME ENG.)	C, S	HISTORIA DEL PUEB DE LOS ESTADOS UN
CONSUMER ECONOMICS	1	0	1	15	12	40%	ECONOMICS - TAUGHT IN SPANISH (SOME ENGLISH)	C, S	ECONOMIA PARA TODOS
FUNDAMENTAL MATH 1	2	2	2	31	31	0	FUND. OF MATHEMATICS -TERM 1 TAUGHT IS SPANISH	C, S	SAME
" " 2	3	3	3	73	73	0	FUND. OF MATHEMATICS -TERM 2 TAUGHT IN SPANISH	C, S	AS
COMPUTER LITERACY 1	1	0	0	57	52	0	COMPUTER LITERACY - TERM 1 TAUGHT IN SPANISH	P	
" " 2	1	0	0	9	6	0	COMPUTER LITERACY - TERM 2 TAUGHT IN SPANISH	P	
SEQUENTIAL MATH 2	1	0	0	16	13	0	SEQUENTIAL MATH - TERM 2 TAUGHT IN SPANISH	C	
GENERAL SCIENCE 2	3	0	0	90	89	0	GENERAL SCIENCE - TERM 2 TAUGHT IN SPANISH	C	
BIOLOGY 2	1	0	1	18	18	20%	BIOLOGY - TERM 2 - TAUGHT IN SPANISH (SOME ENGLISH)	C, S	
REGENTS BIOLOGY 2	1	0	1	24	24	20%	REGENTS BIOLOGY - TERM 2 TAUGHT IN SPANISH (SOME ENG.)	C, S	

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APPENDIX E

Staff Development Activities in School

Strategy	Description(s), Goals, or Titles	Staff Attending No.	Staff Attending Title(s)	Speaker or Presenter	Frequency or Number of Sessions
Dept. Meetings	MONTHLY DEPARTMENT MEETINGS		ALL TEACHERS IN THE	E. MEJIA, ASSISTANT PRINCIPAL	MONTHLY
	WHICH INCLUDE PROFESSIONAL		DEPARTMENT		
	TOPICS				
Workshops (list)	STAFF DEVELOPMENT DAY - COM-			B. WARD	2-SEPT. 85', JAN 86'
	PUTER WORKSHOPS/COMPUTER WORK-				
	SHOPS ON USE OF PFS SERIES			E. MEJIA	TWICE WEEKLY FOR 8 WEEKS
Other: demonstration lessons, lectures, etc.	DEMONSTRATION LESSONS AND ON-	10	ESL TEACHERS,	S. FALLICK	VARIED
	GOING INDIVIDUAL ASSISTANCE		NATIVE LANGUAGE ARTS	E. DEVARONA	
	WERE PROVIDED TO TEACHERS IN		TEACHERS	M. BACH	
	THE PROGRAM				
Conferences and symposia (list)	NABE	1	PROJECT DIRECTOR	VARIOUS	1
	CHICAGO, ILLINOIS				

APPENDIX F

University Courses Attended by Staff (Professional and Paraprofessional) (Fall)

List Staff Titles	Institution	Courses	Grade P/F/ Inc	Total No. of Credits Taken	Applicability of Coursework to Program		
					Hardly	Somewhat	Very
PROJECT DIRECTOR	IONA COLLEGE	SUPERVISION IN GEN. ED.	P	3			X
TEACHER	LEHMAN COLLEGE	COMPARATIVE PHYSIOLOGY & BIO. CHEM.	P	3			X
TEACHER	LONG ISLAND UNIV	PUERTO RICAN CULTURE	P	3			X
ED. ASSISTANT	MERCY COLLEGE	ORAL COMMUNICATION	P	3			X
ED. ASSISTANT	MERCY COLLEGE	BILINGUAL -BICULTURAL EDUCATION COMPARATIVE ROMANCE LINGUISTICS	P	6			X

University Courses Attended by Staff (Professional and Paraprofessional) (Spring)

List Staff Titles	Institution	Courses	Grade P/F/ Inc	Total No. of Credits Taken	Applicability of Coursework to Program		
					Hardly	Somewhat	Very
PROJECT DIRECTOR	IONA COLLEGE	DYNAMICS OF INTERPERSONAL RELATIONSHIPS	P	3			X
TEACHER	LONG ISLAND UNIV.	HISTORY OF EDUCATION IN AMERICA		3		X	
ED. ASSISTANT	MERCY COLLEGE	MAIN CURRENTS IN SPANISH CIVILIZATION II/ READING PRACTICUM		6		X	